cadence®

What's New in AWR Analyst 16

Product Version 16.03

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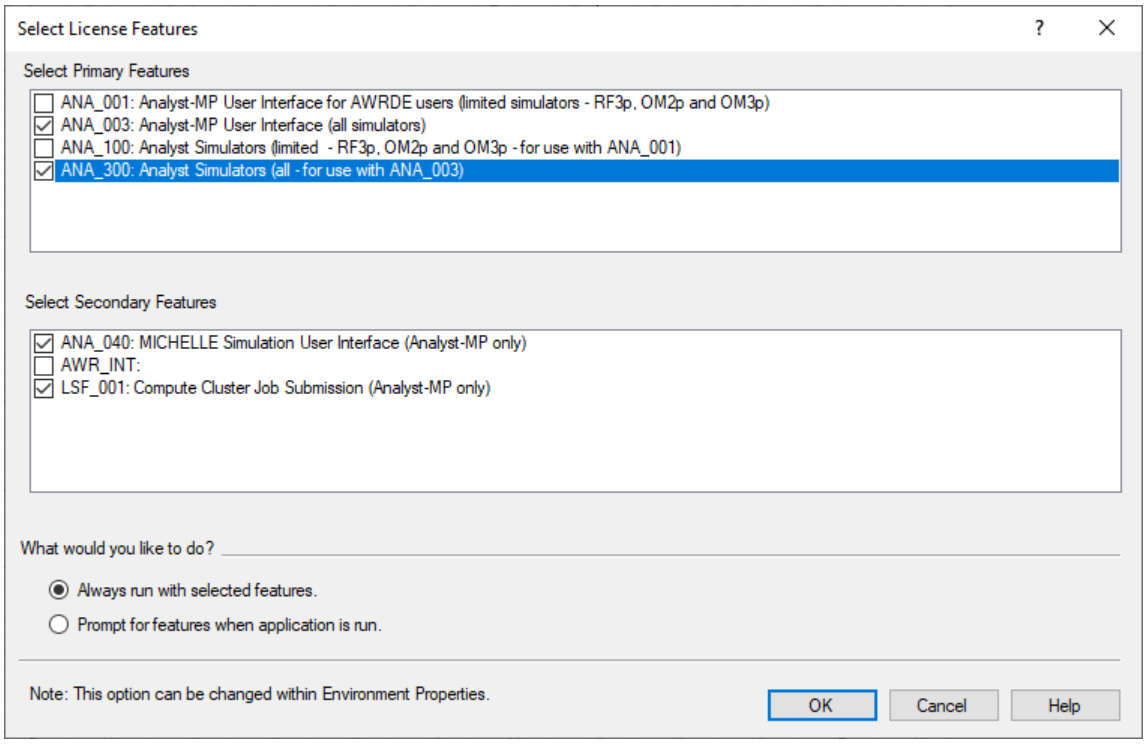
Migration Issues

The following are issues you need to address when migrating from a Cadence® Analyst™ 3D FEM EM analysis software V15 release to an Analyst V16 release. Not all topics apply to every user. If you are not familiar with a topic or program feature included here, it probably does not apply to your use of the software. You should read about all of the issues before developing your migration strategy. You can contact Technical Support for AWR Products with any questions.

Analyst V16-Specific Migration Issues

Licensing Changes

ANA-300 and ANA-100 are now optional startup features. You must select them when launching Analyst software in order to run simulations, and those features are held for the entire session. If you normally start Analyst with a desktop shortcut that includes saved features, or have selected **Always run with the selected features** in the Select License Features dialog box, your saved features list may not include ANA-300 or ANA-100. In that case, you will have errors when trying to run simulations. To fix the errors, you must recreate your desktop shortcut or startup list to include those features.



Remote Linux Simulation Changes (Analyst-MP Only)

Prior Analyst Versions

If you wish to continue using prior versions of Analyst software on Linux, Cadence recommends not removing any settings that these versions rely on. See the Analyst software documentation for these prior versions for those requirements.

Requirements

The locale for the Windows 1252 character set (en_US.cp1252) is no longer required for V16 Linux Analyst or Cadence AXIEM® 3D planar EM simulations.

Changes to Simulation Properties

1. Removed **Cluster > Project Charge ID**. For LSF, you need to specify this using the -P argument in the **Submission Options** input on the **Job Scheduler Admin** host details dialog box.
2. **Cluster > Submission Arguments Location** is moved to the Job Scheduler Admin Host Details dialog box.
3. Renamed the **Cluster > Additional Submission Options** to **Cluster > Submission Options Override**. This input is used to override the value defined in the Job Scheduler Host Entry dialog box. These are passed directly to your Linux resource manager (for example, LSF) as trailing lines in the submission script, and can be used to specify things like memory reservations or wall time limits.

Changes to Job Scheduler Host Details Dialog Box

1. Moved **Initialization > Submission Arguments Location** to this dialog box from the simulation properties.
2. Added **Initialization > Submission Options** input. This value is passed directly to your Linux resource manager (for example, LSF) as trailing lines in the submission script, and can be used to specify things like memory reservations or wall time limits.
3. Removed the **Cluster Resource Manager > Queue Name** input. For LSF, you can specify this using the -Q argument in the **Submission Options** input.

Version-Independent Migration Issues

The items in this section address moving files and settings from one software version to another. Some of these files and settings are automatically migrated from a previous version of the software to the current version.

NOTE: Ensure that your Windows® Explorer program is set to show hidden and system files.

Files Automatically Migrated

All files from the *All Users App Data Directory* and the *User App Data Directory* are copied to their correct locations when you start the new version of Analyst software for the first time. Also included are the user preferences file, hotkey file, layout of the design environment, job queues, and other settings. See "Showing Files and Folders " for details. Note that for migration to occur, these directories must be in their default locations.

Files NOT Automatically Migrated

The Analyst software license file is not migrated, however the location of the license file is migrated in the user preferences file.

Transferring Preference Files to Different User or Machine

There may be situations where you want to transfer preferences from one user to another or from one machine to another. To do so, use the following steps.

To transfer **user** preferences to a different user or machine:

1. Locate the folder on the source machine: *C:\Users\<source username>\AppData\Roaming\AWR\Analyst\<version number e.g. 14.0>*.
2. Copy the *UserPython* folder, and the *DockPanelLayout.xml*, *Preferences.xml*, *RecentFiles.txt*, *ToolBarLayout.xml*, and *Windows.xml* files from this folder.

3. Locate the folder on the destination machine: *C:\Users\<destination username>\AppData\Roaming\AWR\Analyst\15.0*. Create the folder if it does not exist.
4. Paste the copied items into the destination folder.

To transfer **all-user** preferences to a different machine:

1. Locate the folder on the source machine: *C:\ProgramData\AWR\Analyst\<version number e.g. 14.0>*.
2. Copy *Preferences.xml* from the version folder.
3. Locate the folder on the destination machine: *C:\ProgramData\AWR\Analyst\15.0*. Create the folder if it does not exist.
4. Paste the copied file into the destination folder.

When you start Analyst software on the destination machine or under the new user, the transferred preferences and other settings are used.

Other Concerns

Project Compatibility

Analyst software project files (*.*apz*) are backward-compatible, so you can open projects created in an older version of Analyst in the current version of Analyst.

Multiple Versions

You can have any number of Analyst software versions on your machine. Each version has its own **Start** menu entry, with no registry conflicts between them. If you double-click on an Analyst software project file (*.*apz*), it opens in the most recently installed compatible version of Analyst software.

Resetting the Temporary Directory

You can reset the *Temporary Directory* via the **File Management / Temporary File Folder** environment variable when there is no model open. See "Setting Environment Properties" for details. The change takes effect for future models after saving the change.

Analyst Features

The Cadence® Analyst™ 3D FEM EM analysis software includes the following new features, enhancements, and user interface changes.

V16 Licensing

ANA-300 and ANA-100 are now start-up features and must be selected in order to run simulations. See "Licensing Changes" for details.

Environment

Data Files

Many Navigator actions previously only available on used data files are now supported on unused data files (for example, Rename and Copy). Additionally, if you attempt to display/edit a large file you a warning displays before Analyst performs that potentially slow action.

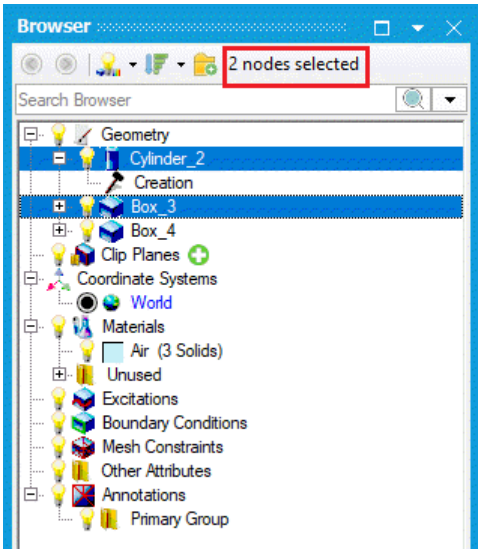
Context Menu Item Changes

A number of context menu item are renamed in the Navigator and Browsers:

1. **Delete All** is renamed to **Delete Children**
2. **All Visible** is renamed to **Children Visible**
3. **All Invisible** is renamed to **Children Invisible**
4. **All Other Visible** is renamed to **Siblings Visible**
5. **All Other Invisible** is renamed to **Siblings Invisible**
6. **Include in Simulation** is renamed to **Include in Simulations**
7. **Exclude from Simulation** is renamed to **Exclude from Simulations**

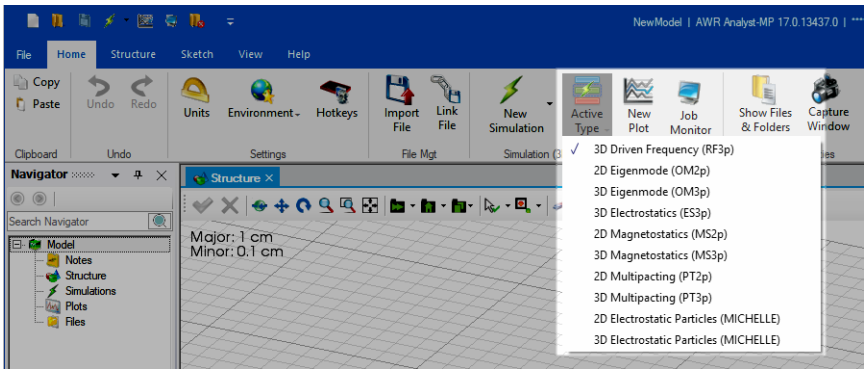
Tree Node Selection

The number of nodes selected in a tree now displays above the tree. See "Selecting Multiple Nodes " for details.

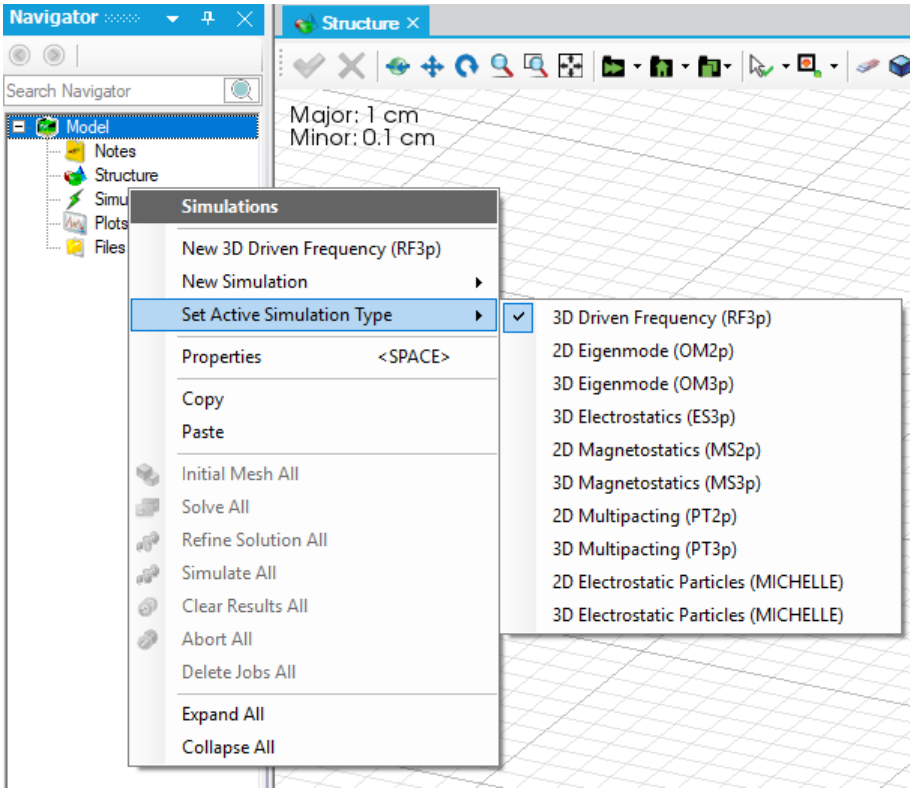


Active Simulation Type

The active simulation type can now be controlled on the **Home** ribbon in the **Simulation** group using the **Active Type** button. This selection controls the list of attributes available on the **Structure** ribbon. See "Creating and Managing" for details.



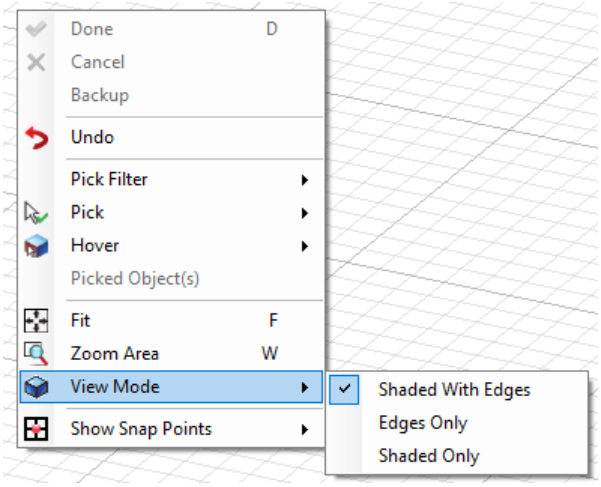
The simulation type can also be controlled from the Navigator **Simulations** node context menu.



Structure

Structure View Mode Available on Context Menu

The ability to switch between shaded, wireframe, and other options is now available on the Structure view context menu.



Copying User Folders

User folders (which contain solids or elements) can now be duplicated using a Copy/Paste operation.

User Folder Properties

The merged properties of solids in a user or material folder can now be accessed using **Properties of Children** from the Structure browser context menu.

Additional Include/Exclude Commands

Context menus for solids and user folders now include commands for including and excluding from simulations.

Simulation (Analyst-MP Only)

Remote Linux Simulation Improvements

The following improvements and changes are included in V16: See "Remote Linux Simulation Changes (Analyst-MP Only)" for migration issues and "Remote Linux Simulations" for additional general information.

Clear Results Keeping Final Mesh

You can now delete all results but the final mesh from a simulation. Note that this replaces experimental support for deleting all but initial mesh. See "Clearing Simulation Results" for details.

Simulate Using Final Mesh

You can now initiate a simulation (AMR sequence) from the simulation's existing final mesh.

Meshing

Performance and Robustness

Meshing is both faster and more robust, particularly on very complex geometries containing many small entities.

Jobs

Job Queues

The **Any, local, local service** and **local socket service** choices for **Queue** input are replaced by **Local**. This is purely a cosmetic change.

Driven Frequency (RF3p)

Port Solver Basis Set

The **Port Solver > Basis Set** input is removed on the **Solver** tab. The basis set used in the wave port solver is now always increased by one order.

DC Extrapolation

The **Extrapolate Toward DC > Direct Estimate** choice is removed on the **Solver** tab, as the other choices, including the default of **Automatic**, perform better.

AMR Frequency Modifiers

The **Ports Only AMR > Frequency Modifier** and **Full Solve AMR > Frequency Modifier** choices are expanded to include **Mid/High** and **Low/Mid/High**.

Multi-terminal Wave Ports

Improved support for multiple terminal configurations in wave ports, including stability and support for multiple positive terminals. Analyst software also now supports running both differential and common modes within one simulation on differential lines by requesting two modes on all terminals

2D Eigenmode

The **Use Hybrid Linear Elements** input is removed from the **Solver** tab. The basis set of the RZ axis is now always increased by one order.

Electrostatic Particles (MICHELLE)

Attribute Names

Symmetry (Reflect) is renamed to **Neumann Symmetry** to make it more obvious that this attribute is distinct from **Neumann**.

New Simulation Inputs

The following are new simulation inputs. See the corresponding parameter Help strings for details.

- **Solver Setup > Imported Fields and Particles > Grid-Defined RF** - A new section named **Settings** is added to support geometric translation.

Modified Primary Emitter Inputs

The following inputs of primary emitter attribute are modified. See the corresponding parameter Help strings for details.

- **Emission Models > Space Charge Limited Emission > Algorithm Code Number for EField Childs Law Calculations** - values 2-8 are deprecated and a value of 9 is added.
- **Emission Models > Space Charge Limited Emission > E-Field Algorithm Distance Factor** is renamed to **Cell Size Multiplier to Determine Gauss's Law Pillbox Size**

Post Processing (Analyst-MP Only)

Plots and Measurements

Chart In-Place Label Edits

Chart titles and series legend labels can now be edited in the chart view directly. This currently does not work for Smith charts.

Smith Charts

Printing and Create Image are now supported on Smith charts.

Version 16.01 Updates

The Cadence® Analyst™ 3D FEM EM analysis version 16.01 software consists primarily of minor improvements and defect corrections.

Version 16.02 Updates

The Cadence® Analyst™ 3D FEM EM analysis version 16.02 software consists primarily of minor improvements and defect corrections.